

Homing peptides for glioma targeting

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We perform systemic in vivo phage display screens to identify homing peptides that bind to specific targets in the tumor vasculature. Corresponding synthetic peptides are used to target drugs, biologicals, and nanoparticles into tumors to increase their therapeutic index.

I will give an overview of our approaches to mapping of vascular “ZIP codes” in normal brain and glioblastoma. I will discuss characterization and validation of candidate vascular homing peptides, and application of the peptides for precision guided delivery of therapeutic and diagnostic nanocarriers. I will provide examples of homing peptides that target malignancy-associated cell surface receptors and extracellular matrix components and discuss their applications for preclinical management of glioblastoma.

Curriculum Vitae

Prof. Teesalu is working on affinity targeting of tumors with homing peptides and peptidomimetic compounds, and he heads the Laboratory of Cancer Biology at the University of Tartu since 2012. Awards and recognitions to Prof. Teesalu include the Susan G. Komen for the Cure Career Development Award (2010), an ERC grant (2010), a Wellcome Trust Senior International Fellowship (2010), an EMBO installation grant (2010), and the Estonian National Prize in Medicine (2017). He holds visiting professorships at the Center of Nanomedicine of University of California Santa Barbara (USA) and at Sanford Burnham Prebys Medical Discovery Institute, La Jolla (USA). On the non-academic side, he has founded three biotech companies, including DrugCendR Inc. (La Jolla, USA) which develops tumor-penetrating peptides for solid tumor targeting.